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S16.302

Physicochemical Changes in Muscat Hamburg and Sugraone Seedless during Grape Berry Ripening

Hellin, P.; Flores, P.; Fuentes, S.; Manso, A.; Fenoll, J.

IMIDA, C/MAYOR S/N, 30150, LA ALBERCA, MURCIA, SPAIN

The ripening process in grape is determined by a series of physicochemical changes that are affected by genetic, climatic and agricultural factors. Evolution during ripening of physical and chemical attributes and metabolites content in Muscat Hamburg (MH) and Sugraone Seedless (SS) grapes were studied during two seasons. Berries were picked off bunches harvested from each of five vines and then classified in six stages of maturity depending on the variety. For MH, the following maturity stages were considered: 1) green berries with diameter higher than 15 mm; 2) grape at 50% véraison; 3) at 100% véraison; and, according to their density by flotation in salt solutions 4) berries with density between 100-110 g/L; 5) 110-130 g/L, and 6) 130-150 g/L. For SS, maturity stages were: 1) green berries with diameter higher than 15 mm; 2) pre-veraison 3) berries with density between 60-80 g/L 4) 80-100 g/L; 5) 100-110 g/L, and 6) 110-130 g/L. The evolution during berry maturation has been studied for total soluble solids (TSS), acidity, pH, fresh weight and maturity index for both varieties. In addition, organic acid (tartaric and malic acid) and soluble sugar (sucrose, glucose and fructose) have been determined. For both varieties, TSS and fresh weight were increased while acidity and pH decreased throughout the growing period. Both glucose and fructose showed similar increasing concentrations in both cultivars during ripening, with fructose concentration being higher than glucose. Tartaric and malic acid initial concentrations were higher for MH than for SS. However similar values were reached for both varieties at the end of the ripening period. No significant differences were found for TSS, acidity, pH and fresh weight between years. Finally, soluble sugar concentration was lower in 2005 than in 2006 whereas that organic acid content was lightly higher in 2005 than in 2006 regardless cultivar.

S16.303

Influence of Elevation and Slope Exposure on Must Volatiles of Mencía Cultivar from Ribeira Sacra (NW Spain)

Rodriguez, I.[1]; Queijeiro, J.[1]; Masa, A.[2]; Vilanova, M.[2]

[1]VIGO UNIVERSITY, AS LAGOAS, S/N, 32004, OURENSE, SPAIN

[2]MISIÓN BIOLÓGICA DE GALICIA – CSIC, PONTEVEDRA, SPAIN

Ribeira Sacra is a Spanish Denomination of Origen (D.O.) that produces young red wines from Mencía cultivar (Galicia, NW). The orography of the Ribeira Sacra D.O. is very characteristic and renders a wide variety of situations that combine elevation, orientation, slope exposure and slope inclination. Indeed, in this area all have terraced vineyards are very close to just one meter wide, where it is only a single row of vines and spread over the slopes which normally have a large inclination (70 to 80 ° slope). With a south-southwest direction, the vineyards are protected from cold winds from the north and the sun bathes the terraces throughout the day. The stone warmed by the sun during the day blunted the lower night temperatures avoiding frost. During the year 2009 we have studied the volatile composition of Mencía cultivar in six different situations (orientation and altitude) of Amandi subzone (Ribeira Sacra D.O.) and the relationship with the altitude and exposition. The results showed the influence climatic and topographic conditions on the volatile composition of Mencía grape grown along Amandi site from Ribeira Sacra D.O. Six different situations were studied and the data were analysed by analysis of variance and mean differences between situations were calculated using the LSD Fishers' test. Biplot principal component analysis (PCA) was performed with mean of volatile compounds identified and quantified. The results showed significant differences among the different situations studied, showed different ripening states in the vineyard.

S16.304

Melatonin and an Isomer Are Present in Different Monovarietal Wines

Rodriguez-Naranjo, M. I.[1]; Gil-Izquierdo, A.[2]; Troncoso, A. M.[1]; Cantos, E.[3]; Garcia-Parrilla, M. C.[1]

[1]ÁREA DE NUTRICIÓN Y BROMATOLOGÍA, FACULTAD DE FARMACIA, C/ PROFESOR GARCÍA GONZÁLEZ S/N, 41012 SEVILLA, SPAIN

[2]DEPARTAMENTO DE CIENCIA Y TECNOLOGÍA DE ALIMENTOS, CALIDAD, SEGURIDAD Y BIOACTIVIDAD DE ALIMENTOS VEGETALES, CEBAS-CSIC. APARTADO DE CORREOS 164, ESPINARDO 30100, MURCIA, SPAIN

[3]ÁREA DE TECNOLOGÍA, POSTCOSECHA E INDUSTRIA AGROALIMENTARIA, INSTITUTO DE INVESTIGACIÓN Y FORMACIÓN AGRARIA Y PESQUERA (IFAPA). RANCHO DE LA MERCED, CRTA. TREBUJENA, KM 3.2, JEREZ DE LA FRONTERA 11.471, CÁDIZ, SPAIN

Melatonin (N-acetyl-3-(2-aminoethyl)-5-methoxyindole) is an indoleamine synthesized from L-tryptophan metabolism via serotonin. It is considered a neurohormone, and a chronobiotic and antioxidant compound. Due to its presence in vegetable tissue, MEL has been evaluated as a food component thanks to the cited biological activity. In order to determine its contribution as a bioactive compound, it is necessary to set up and design suitable methods for its qualitative and quantitative analysis. This paper aimed to detect accurately melatonin in wine for the first time by LC-ESI-MS/MS and multiple reactions monitoring mode (MRM). Melatonin was detected in wines by comparison of its retention time and MS, MS2 and MS3 spectra with its commercial authentic marker. In addition to melatonin, LC-ESI-MS/MS, analyses revealed the occurrence of a compound with an identical fragment pattern (positive mode ESI). The major mass fragmentation ions of the other [M+H] + (233) at m/z: 216, 174.1 and 159.1 was tentatively identified as a melatonin isomer (not previously described in wines). It appeared in certain monovarietal wines (Jaen Tinto, Merlot and Palomino Negro) whilst melatonin was the only compound in others (Petit Verdot and Syrah) and a third group of wines showed both of them (Cabernet Sauvignon, Prieto Picudo and Tempranillo).

S16.305

Melatonin Is Synthesized during Vinification Process

Rodriguez-Naranjo, M. I.[1]; Garcia-Parrilla, M. C.[1]; Troncoso, A. M.[1]; Cantos, E.[2]; Gil-Izquierdo, A.[3]

[1]ÁREA DE NUTRICIÓN Y BROMATOLOGÍA, FACULTAD DE FARMACIA, C/ PROFESOR GARCÍA GONZÁLEZ Nº2, SEVILLA 41012, SPAIN

[2]ÁREA DE TECNOLOGÍA, POSTCOSECHA E INDUSTRIA AGROALIMENTARIA, INSTITUTO DE INVESTIGACIÓN Y FORMACIÓN AGRARIA Y PESQUERA (IFAPA), RANCHO DE LA MERCED, CRTA. TREBUJENA, KM 3.2, JEREZ DE LA FRONTERA 11.471, CÁDIZ, SPAIN

[3]DEPARTAMENTO DE CIENCIA Y TECNOLOGÍA DE ALIMENTOS, CALIDAD, SEGURIDAD Y BIOACTIVIDAD DE ALIMENTOS VEGETALES, CEBAS-CSIC, APARTADO DE CORREOS 164, ESPINARDO 30100, MURCIA, SPAIN

Grapes and wines are a great source of biologically active compounds but little it is known about others such as indoleamines. Melatonin (N-acetyl-3-(2-aminoethyl)-5-methoxyindole), an indoleamine produced by pineal gland, is present in different plant materials. This work aimed to detect the presence of melatonin in grape (skin, seeds and pulp), and during wine production. Five red and a white grape varieties were studied. No melatonin was detected in any part of the grape (peel, pulp and seeds) using different extraction solvents (methanol: water (1:1), chloroform and ethyl acetate) and by multiple reaction monitoring mode (MRM) by LC-ESI-MS/MS. However, melatonin occured during the vinification process as was confirmed by LC-ESI-MS/MS analyses. The winemaking steps of this study were: destem-crush vatt, press and racke for red wines and destem-crush, dejuice and racke for the white wine. Mel appears in press for red wines and in the juice used for the white wine just when yeast was added. Further studies are needed to explain the role of yeasts in the melatonin synthesis and to know the best parameters for the production of this compound.

S16.306

The Powdery Mildew Infection of a Vineyard at Lake Balaton in Term of Climate Conditions in 2008

Taksonyi, P.; Kocsis, L.

DEPARTMENT OF HORTICULTURE, GEORGIKON FACULTY, UNIVERSITY OF PANNONIA, DEÁK F. U. 16., 8360, KESZTHELY, HUNGARY